What is claimed is:

SUB(15)   1.   A video mixing apparatus taking out a foreground object component from a source video signal obtained by shooting an object in front of a monochromatic screen, and fitting the object component into a background video

5   signal, said apparatus comprising:

a key signal generator for setting a key signal distribution formed by a first oval body surrounding a region where a reference color of the screen is distributed in a three-dimensional color space and a second oval body surrounding the first oval body, and for generating a mixing key signal

10   according to positional a relation among the source video signal, the first oval body and the second oval body in the key signal distribution; and

a mixing processor for taking out the foreground object component by the mixing key signal, and for mixing the object component with the background signal.

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2.   The video mixing apparatus of Claim 1, wherein

a base clip level is a distance from the reference color to a cross point where the first oval body crosses with a vector starting from the reference color toward the source video signal,

a peak clip level is a distance from the reference color to a

20   cross point where the second oval body crosses with a vector starting from the reference color toward the source video signal, and

the mixing key signal is a value responsive to a distance between the source video signal and the reference color, the value is saturated at

25   the base clip level and the peak clip level with respect to the distance.

3.   The video mixing apparatus of Claim 1, wherein the first and

second oval bodies share a common center of the reference color of the screen, and the first and second oval bodies are similar in shape.

4.   The video mixing apparatus of Claim 1 further comprising a
5   screen signal generator for generating a screen signal by using the source video signal and the screen reference color, the screen signal indicates a screen component included in the source video signal,

wherein said mixing processor subtracts the screen component from the foreground object component by the screen signal, so that
10   the foreground object component is mixed with the background video signal.

5.   The video mixing apparatus of Claim 4, wherein said screen signal generator outputs (i) the source video signal as the screen signal when the source video signal is inside the first oval body, and (ii) a coordinates value as
15   the screen signal when the source video signal is outside the first oval body, where the coordinates is a cross point of the first oval body and a vector starting from the screen reference color toward the source video signal.

6.   The video mixing apparatus of Claim 1, wherein said key signal
20   generator sets a third oval body surrounding the second oval body in the key signal distribution, generates a color-canceling key signal—canceling a screen color component included in the source video signal—according to a positional relation among the source video signal, the first oval body and the third oval body in the key signal distribution, and subtracts a screen color component from
25   the foreground object component by the color-canceling key signal, so that the foreground object component is mixed with the background video signal.

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7. A method of mixing videos by taking out a foreground object component from a source video signal obtained by shooting an object in front of a monochromatic screen, and fitting the object component into a background video signal, said method comprising the steps of:

5   (a) setting a first oval body, surrounding a region where a reference color of the screen is distributed, in a three-dimensional color space;

(b) setting a key signal distribution formed by a second oval body surrounding the first oval body and the first oval body;

(c) generating a mixing key signal based on a positional

10 relation among the first oval body, the second oval body and the source video signal in the key signal distribution;

(d) taking out the foreground object component by the mixing key signal; and

(e) mixing the object component with the background signal.

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8. The method of mixing videos of Claim 7, wherein step (c) includes the steps of:

(c-1) setting a distance as a base clip level, where the distance spans between the reference color and a cross point of the first oval

20 body and a vector starting from the reference color toward the source video signal;

(c-2) setting a distance as a base clip level, where the distance spans between the reference color and a cross point of the second oval body and a vector starting from the reference color toward the source video

25 signal; and

(c-3) setting a value responsive to a distance between the source video signal and the reference color as the mixing key signal, where the

value is saturated at the base clip level and the peak clip level with respect to the distance.

9. The method of mixing videos of Claim 7, wherein the first and
5   second oval bodies share a common center of the reference color of the screen, and the first and second oval bodies are similar in shape.

10. The method of mixing videos of Claim 7 further comprising the steps of:

10   (g) generating a screen signal indicating a screen component included in the source video signal by using the source video signal and the screen reference color; and

(h) mixing the object component with the background signal by subtracting the screen component from the foreground object component by
15 the screen signal.

11. The method of mixing videos of Claim 10, wherein step (g) includes the steps of:

(g-1) outputting the source video signal as the screen signal
20 when the source video signal is inside the first oval body, and

(g-2) outputting a coordinates value as the screen signal when the source video signal is outside the first oval body, where the coordinates is a cross point of the first oval body and a vector starting from the screen reference color toward the source video signal.

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12. The method of mixing videos of Claim 7 further comprising the steps of:

(f) setting a third oval body surrounding the second oval body in the key signal distribution; and

(g) generating a color-canceling key signal ⎯ canceling a screen color component included in the source video signal⎯according to a positional relation among the source video signal, the first oval body and the third oval body in the key signal distribution,

wherein step (e) includes a step of subtracting the screen color component from the foreground object component by the color-canceling key signal for the object to be mixed with the background video signal.